

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

1-55. Canceled.

56. (new) A resource allocation method in a communications system having resources, said method comprising:

dividing said resources into at least a first resource class having a first associated characteristic allocation time and a second resource class having a second associated characteristic allocation time that is longer than said first associated characteristic allocation time based on respective associated characteristic allocation times of said resources, where a resource of said first resource class is allocable with an allocation procedure of a first allocation procedure set and a resource of said second resource class is allocable with an allocation procedure of a second, different allocation procedure set,

for each resource class of said at least first resource class and said second resource class:

determining a resource utilization measure; and

selecting whether or not to trigger resource allocation based on said resource utilization measure.

57. (new) The method according to claim 56, wherein determining said resource utilization measure and selecting whether or not to trigger resource allocation are first performed for said second resource class and are then performed for first second resource class.

58. (new) The method according to claim 56, wherein selecting whether or not to trigger resource allocation comprises:

comparing said resource utilization measure with a threshold associated with said resource class; and

triggering resource allocation if said resource utilization measure exceeds said threshold.

59. (new) The method according to claim 58, wherein a first threshold associated with said first resource class is larger than a corresponding second threshold associated with said second resource class.

60. (new) The method according to claim 58, wherein said communications system provides a guaranteed minimum amount of resources of said first resource class to a connected user equipment, and a resource utilization measure of said first resource class exceeds said first threshold and a resource utilization measure of said second resource class exceeds said second threshold, said method comprising:

triggering resource allocation for said second resource class; and

temporarily allocating a first resource amount of said first resource class to said user equipment during progression of said resource allocation for said second resource class, said first resource amount being smaller than said guaranteed minimum resource amount,

whereby a total resource utilization is temporarily reduced during said progression of said resource allocation for said second resource class.

61. (new) The method according to claim 60, further comprising reallocating a second resource amount of said first resource class to said user equipment after completion of said resource allocation for said second resource class, said second resource amount being equal to or larger said guaranteed minimum resource amount.

62. (new) The method according to claim 58, further comprising calculating a threshold associated with said second resource class based on a threshold associated with said first resource class.

63. (new) The method according to claim 56, wherein said resources are radio resources and said method comprising providing said radio resources to user equipment connected to said communications system for enabling utilization of communications services available for said user equipment.

64. (new) The method according to claim 56, wherein an associated characteristic allocation time of a resource class of said at least one first resource class and said second resource class is a total time required for allocating or reallocating a resource of said resource class.

65. (new) The method according to claim 56, wherein said first allocation procedure set comprises at least one of:

restricting available transport format combinations, TFC, for user equipment connected to said system; and

performing an Adaptive Multi Rate, AMR, mode switch for said user equipment,
and said second allocation procedure set comprises least one of:

performing a channel switch from a dedicated high bit-rate channel to a dedicated
low bit-rate channel for said user equipment;

performing a channel switch from a dedicated channel to a common channel for
said user equipment;

performing a handover from a first radio access network to a second radio access
network for said user equipment;

performing a handover from a first carrier frequency to a second carrier frequency
for said user equipment; and

dropping an ongoing call for said user equipment.

66. (new) The method according to claim 56, wherein determining said resource
utilization measure is performed periodically.

67. (new) The method according to claim 56, wherein determining said resource
utilization measure is performed upon a triggering event selected from at least one of:

a change in the number of available channels for connected user equipment;

a change in the number of connected user equipment;

a change in the number of provided services per user equipment;

a change in QoS requirements of an on-going communications service for
connected user equipment;

a reception of an updated mobility measurement report;

a reception of an updated interference measurement report; and
a change in data traffic.

68. (new) The method according to claim 56, further comprising selecting any resource to be allocated based on information of QoS requirements for connected user equipment.

69. (new) The method according to claim 56, further comprising selecting any resource to be allocated based on resource saving estimation information.

70. (new) The method according to claim 56, wherein determining said resource utilization measure comprises estimating a total power of communications links used for said resource class.

71. (new) A resource allocation system provided in a communications system having resources, said resources being divided into at least a first resource class having a first associated characteristic allocation time and a second resource class having a second associated characteristic allocation time that is longer than said first associated characteristic allocation time based on respective associated characteristic allocation times of said resources, where a resource of said first resource class is allocable with an allocation procedure of a first allocation procedure set and a resource of said second resource class is allocable with an allocation procedure of a second, different allocation procedure set, said resource allocation system comprising:

determination means for determining, for each resource class, a resource utilization measure; and

selectively allocation triggering means for selectively triggering, for each resource class and in dependence of said resource utilization measure, resource allocation according to an allocation procedure available for said resource class.

72. (new) The system according to claim 71, wherein said determination means and said selectively allocation trigger means are configured for first performing said measure determination and said selectively allocation triggering for said second resource class and then performing said measure determination and selectively allocation triggering for said first resource class.

73. (new) The system according to claim 71, wherein said selectively allocation triggering means comprises:

means for comparing said resource utilization measure with a threshold associated with said resource class; and

means for triggering said resource allocation if said resource utilization measure exceeds said threshold.

74. (new) The system according to claim 73, wherein a first threshold associated with said first resource class is larger than a corresponding second threshold associated with said second resource class.

75. (new) The system according to claim 74, wherein said communications system provides a guaranteed minimum amount of resources of said first resource class to a connected

user equipment, and a resource utilization measure of said first resource class exceeds said first threshold and a resource utilization measure of said second resource class exceeds said second threshold, said selectively allocation triggering means is configured for:

triggering of resource allocation for said second resource class; and

temporarily allocation of a first resource amount of said first resource class to said user equipment during progression of said resource allocation for said second resource class, said first resource amount being smaller than said guaranteed minimum resource amount.

76. (new) The system according to claim 75, further comprising means for reallocating a second resource amount of said first resource class to said user equipment after completion of said resource allocation for said second resource class, said second resource amount being equal to or larger said guaranteed minimum resource amount.

77. (new) The system according to claim 73, further comprising means for calculating a threshold associated with said second resource class based on a threshold associated with said first resource class.

78. (new) The system according to claim 71, wherein said characteristic allocation time is a total time required for said selectively allocation triggering means to allocate or reallocate a resource of said resource class.

79. (new) The system according to claim 71, wherein said determination means is configured for determining said resource utilization measure periodically.

80. (new) The system according to claim 71, wherein said determination means is configured for determining said resource utilization measure in response to triggering input information.

81. (new) The system according to claim 71, comprising means for selection of any resource to be allocated based on information of QoS requirements for connected user equipment.

82. (new) The system according to claim 71, comprising means for selection of any resource to be allocated based on resource saving estimation information.

83. (new) The system according to claim 71, wherein said determination means is configured for estimating a total power of communications links used for said resource class.

84. (new) The system according to claim 71, wherein said resource allocation system is provided in a network node of said communications system.

85. (new) Communications system having resources, said system comprising:
means for dividing said resources into at least a first resource class having a first associated characteristic allocation time and a second resource class having a second associated characteristic allocation time that is longer than said first associated characteristic allocation time based on respective associated characteristic allocation times of said resources, where a resource

of said first resource class is allocable with an allocation procedure of a first allocation procedure set and a resource of said second resource class is allocable with an allocation procedure of a second, different allocation procedure set; and

resource allocation means for performing, for each resource class:

determination of a resource utilization measure; and

selectively triggering of resource allocation according to an

allocation procedure available for said resource class, in dependence of said resource utilization measure.

86. (new) The system according to claim 85, wherein said resource allocation means is configured for first performing said measure determination and said selectively allocation triggering for said second resource class and are then performing said measure determination and selectively allocation triggering for said first resource class.

87. (new) The system according to claim 85, wherein said selectively allocation triggering means comprises:

means for comparing said resource utilization measure with a threshold associated with said resource class; and

means for triggering said resource allocation if said resource utilization measure exceeds said threshold.

88. (new) The system according to claim 87, wherein a threshold associated with said first resource class is larger than a corresponding threshold associated with said second resource class.

89. (new) The system according to claim 87, further comprising means for calculating a threshold associated with said second resource class based on a threshold associated with said first resource class.

90. (new) The system according to claim 85, wherein said characteristic allocation time is a total time required for said resource allocation means to allocate or reallocate a resource of said resource class.

91. (new) The system according to claim 85, wherein said determination means is configured for estimating a total power of communications links used for said resource class.

92. (new) The system according to claim 85, wherein said resources are radio resources and said communication system comprises means for providing said radio resources to user equipment connected to said system for enabling utilization of communications services available for said user equipment.

93. (new) A resource allocation method in a communications system, said method comprising:

providing a guaranteed minimum amount of resources of a first resource class and resources of a second resource class, a characteristic allocation time of said first resource class being shorter than a corresponding characteristic allocation time of said second resource class;

triggering resource allocation for said second resource class using an allocation procedure of a second allocation procedure set; and

temporarily allocating a first resource amount of said first resource class using an allocation procedure of a first, different allocation procedure set during progression of said resource allocation for said second resource class, said first resource amount being smaller than said guaranteed minimum resource amount,

whereby a total resource utilization is temporarily reduced during said progression of said resource allocation for said second resource class.

94. (new) The method according to claim 93, further comprising reallocating a second resource amount of said first resource class after completion of said resource allocation for said second resource class, said second resource amount being equal to or larger said guaranteed minimum resource amount.

95. (new) The method according to claim 93, wherein temporarily allocating said first resource amount comprises:

calculating, for said first resource class, a first resource utilization measure;

comparing said first resource utilization measure with a first threshold associated with said first resource class; and

triggering said temporary resource allocation if said first resource utilization measure exceeds said first threshold.

96. (new) The method according to claim 93, wherein triggering resource allocation comprises:

calculating, for said second resource class, a second resource utilization measure;
comparing said second resource utilization measure with a second threshold associated with said second resource class; and
triggering resource allocation for said second resource class if said resource utilization measure exceeds said second threshold.

97. (new) The method according to claim 94, wherein reallocation said second resource amount comprises:

calculating, for said first resource class, a first resource utilization measure in response to ending said resource allocation for said second class;
comparing said first resource utilization measure with a third threshold associated with said first resource class; and
triggering said reallocation of said second resource amount if said first resource utilization measure is below said third threshold.

98. (new) The method according to claim 93, further comprising:

determining a total packet delay for user equipment connected to said communications system and utilizing resources of said first resource class;

comparing said total packet delay with a delay threshold; and
reallocating a second amount of said first resource class if said total delay exceeds said delay threshold, said second amount being equal to or larger than said guaranteed minimum resource amount.

99. (new) The method according to claim 93, further comprising:

determining a total packet delay for user equipment connected to said communications system and utilizing resources of said first resource class;
comparing said total packet delay with a first delay threshold;
comparing a packet delay introduced by said temporarily resource allocation with a second delay threshold if said total delay exceeds said first delay threshold; and
reallocating a second resource amount of said first resource class if said delay introduced by said temporarily resource allocation exceeds said second delay threshold, said second resource amount being equal to or larger than said guaranteed minimum resource amount.

100. (new) The method according to claim 93, wherein said communications system provides streaming services by means of at least one resource of said guaranteed minimum amount of resources and/or said resources of said second resource class to user equipment connected to said communications system.

101. (new) The method according to claim 94, wherein temporarily allocating said first resource amount comprises temporarily reducing allowed bit-rate below a guaranteed minimum bit-rate by restricting allowed Transport Format Combination, TFC, and reallocating said second

resource amount comprises increasing said allowed bit-rate to at least said guaranteed minimum bit-rate by releasing said imposed TFC restrictions.

102. (new) A resource allocation system in a communications system providing a guaranteed minimum amount of resources of a first resource class and resources of a second resource class, a characteristic allocation time of said first resource class being shorter than a corresponding characteristic allocation time of said second resource class, said resource allocation system comprising:

means for triggering resource allocation for said second resource class using an allocation procedure of a second allocation procedure set; and

means for temporarily allocating a first resource amount of said first resource class using an allocation procedure of a first, different allocation procedure set during progression of said resource allocation for said second resource class, said first resource amount being smaller than said guaranteed minimum resource amount,

whereby a total resource utilization is temporarily reduced during said progression of said resource allocation for said second resource class.

103. (new) The system according to claim 102, further comprising means for reallocating a second resource amount of said first resource class after completion of said resource allocation for said second resource class, said second resource amount being equal to or larger said guaranteed minimum resource amount.

104. (new) The system according to claim 102, wherein said temporarily allocating means comprises:

means for calculating, for said first resource class, a first resource utilization measure;

means for comparing said first resource utilization measure with a first threshold associated with said first resource class; and

means for triggering ~~(130)~~ said temporary resource allocation if said first resource utilization measure exceeds said first threshold.

105. (new) The system according to claim 102, wherein said triggering means comprises:

means for calculating, for said second resource class, a second resource utilization measure;

means comparing said second resource utilization measure with a second threshold associated with said second resource class; and

means for triggering resource allocation for said second resource class if said resource utilization measure exceeds said second threshold.

106. (new) The system according to claim 103, wherein said reallocation means comprises:

means for calculating, for said first resource class, a first resource utilization measure in response to ending said resource allocation for said second class;

means for comparing said first resource utilization measure with a third threshold associated with said first resource class; and

means for triggering said reallocation of said second resource amount if said first resource utilization measure is below said third threshold.

107. (new) The system according to claim 102, further comprising:

means for determining a total packet delay for user equipment connected to said communications system and utilizing resources of said first resource class;

means for comparing said total packet delay with a delay threshold; and

means for reallocating a second resource amount of said first resource class if said total delay exceeds said delay threshold, said second resource amount being equal to or larger than said guaranteed minimum resource amount.

108. (new) The method according to claim 102, further comprising:

means for determining a total packet delay for user equipment connected to said communications system and utilizing resources of said first resource class;

means for comparing said total packet delay with a first delay threshold;

means for comparing a packet delay introduced by said temporarily resource allocation with a second delay threshold if said total delay exceeds said first delay threshold; and

means for reallocating a second resource amount of said first resource class if said delay introduced by said temporarily resource allocation exceeds said second delay threshold, said second resource amount being equal to or larger than said guaranteed minimum resource amount.

109. (new) The system according to claim 102, wherein said communications system is adapted for providing streaming services by means of at least one resource of said guaranteed minimum amount of resources and/or said resources of said second resource class to user equipment connected to said communications system.

110. (new) The system according to claim 103, wherein said temporarily resource allocating means is configured for temporarily reducing allowed bit-rate below a guaranteed minimum bit-rate by restricting allowed Transport Format Combinations, TFC, and said reallocating means is configured for increasing said allowed bit-rate to at least said guaranteed minimum bit-rate by releasing said imposed TFC restrictions.